

FACT SHEET: CHEMICAL AGENTS

Types of Agents:

Choking Agents: Phosgene

Chlorine

Nerve Agents: Tabun (GA)

Sarin (GB)

Soman (GD)

GF, VX

Vesicants: Sulfur Mustard

(Blister Agents) Nitrogen Mustard

Lewisite

Blood Agents: Cyanide

Riot Control

Agents: CS, CN (Mace)

Clues of a Chemical Attack:

- Numbers of ill persons with similar syndrome
- Unexplained illness in healthy individuals
- Unusual temporal or geographic clustering
- Non-specific syndromes
 - weakness
 - hypersecretion (drooling, tearing, rhinorrhea, diarrhea)
 - skin burn (redness, blistering, itching, sloughing)
- Sentinel animal deaths

Nerve Agents:

- Effects dependent on exposure site, dose, type of agent
 - liquid (potential delayed effects) vs. vapour (effects more immediate)

Clinical Presentation:

- Within 30 seconds
 - miosis, tightness in chest, dizziness, incoordination
- Within 1 minute
 - prostration, +++ secretions, loss of consciousness
- Within 5 minutes
 - generalized muscle spasms, convulsions, obstructed airway
- From 5 to 15 minutes
 - respiratory failure, circulatory collapse, death

Management Principles:

- Decontamination
 - removal of clothing (beware of "off-gassing")
 - skin exposed to liquid agent (not vapour) needs decontamination with soap and water or dilute hypochlorite
- Atropine, anticonvulsant medication and antidotes are available by emergency ACLS responders

Blister Agents – Mustard:

- Yellow/brown oily droplets
- Heavy vapour, low volatility, persistent
- Odour of garlic, horseradish or mustard
- Inhalation or dermal absorption (2 minutes)
- May be delayed onset of effects (2-48 hours)
- Local and systemic effects

Clinical Presentation:

- Skin – erythema, vesicles, bullae, erosion
- Eyes – conjunctivitis → corneal ulceration/perforation
- Airways – hemorrhage, pain, dysphonia, stridor, bronchospasm, edema
- Systemic
 - Bone marrow suppression, infection
 - GI
 - CNS (seizure, coma)

Management Principles:

- Decontamination
 - must be within 2 minutes for patient to benefit
 - after 2 minutes to reduce secondary exposure
- Supportive
 - early ventilatory support
 - IV fluids
 - skin lotions, debridement, irrigation
 - antibiotics, analgesics